



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/715,758

11/18/2003

David Boyd Rich

DP-302242

5277

22851

7590

11/22/2005

DELPHI TECHNOLOGIES, INC.

M/C 480-410-202

PO BOX 5052

TROY, MI 48007

EXAMINER

KWOK, HELEN C

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.D

Office Action Summary	Application No.	Applicant(s)	
	10/715,758	RICH ET AL.	
	Examiner	Art Unit	
	Helen C. Kwok	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/18/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected because the abstract should be a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 29 is objected to because of the following informalities. Appropriate correction is required.

In claim 29, line 3, the phrase "of the" should be deleted. In line 4, the phrase "of the" should be deleted.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2856

4. Claims 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,393,914 (Zarabadi et al.) in view of either U.S. Patent 5,939,171 (Biebl) or U.S. Patent 5,652,384 (Henrion et al.).

Zarabadi et al. discloses an angular accelerometer comprising, as illustrated in Figures 1-10, a substrate 60 having a cavity 34; a floor (as observed) of the cavity; a rim (as observed) surrounding the cavity; a proof mass 12 supported within the cavity; first fingers cantilevered 14 radially outward from the proof mass toward the rim; second fingers cantilevered 24 radially inward from the rim toward the proof mass such that the second fingers are interdigitized with the first fingers; tethers 16A-16H interconnecting the proof mass and the rim; at least one stiction bump 27 is on at least one of the second fingers facing a corresponding one of the first fingers. (See, column 3, line 28 to column 8, line 6). The only difference between the prior art and the claimed invention is at least one stiction bump located on the floor of the cavity beneath the proof mass.

Biebl discloses a micromechanical component comprising, as illustrated in Figures 1, 6-9, a stiction bump 3 (i.e. spikes or spacer) located on a floor of the cavity of a substrate 1. (See, column 3, lines 44-62). At the same time, Henrion et al. discloses an accelerometer comprising, as illustrated in Figure 3, a stiction bump 45 (i.e. vertical travel stop) located on a floor of the cavity of a substrate 4. (See, column 6, lines 5-14). It would have been obvious to a person of ordinary skill in the art at the time of invention to have readily recognize the advantages and desirability of employing the stiction bump as taught by either Biebl or Henrion et al. to the apparatus of Zarabadi et al. to prevent

Art Unit: 2856

the proof mass from being able to contact the surface of the substrate so that the proof mass will not be affected by the applied external forces.

With regards to claims 25-29, the references, Zarabadi et al. and Biebl further disclose the first and second fingers have approximately equal widths; each of the tethers has a constant width; a plurality of stiction bumps on each of the second fingers and beneath only the proof mass; and a hub 15. (As observed in the figures and described in the references of Zarabadi et al. and Biebl).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


The references cited are related to microelectromechanical device having a proof mass, electrode fingers and stiction bumps.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen C. Kwok whose telephone number is (571) 272-2197. The examiner can normally be reached on 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2856

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script, appearing to read "Helen Kwok", is written over a horizontal dashed line.

Helen C. Kwok
Art Unit 2856

hck
November 17, 2005